



2009 Minerals Yearbook

ALUMINUM

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During 2009, primary aluminum production fell to the lowest level since 1961 owing to declining demand and falling prices in the wake of the continuing effects of the global financial crisis of 2008. Domestic primary smelters produced 1.73 million metric tons (Mt) of aluminum metal, 35% less than that in 2008 (table 1). The value of production fell to \$3.03 billion, 57% less than the value of production in 2008. At yearend, five companies were operating nine domestic primary aluminum smelters in seven States. Smelters east of the Mississippi River accounted for about 77% of production. During the year, in response to lower aluminum prices and weaker demand, four smelters were idled, in addition to four that had been closed temporarily prior to 2009. Demolition of another smelter that had been closed since 2002 was completed during the year. At yearend 2009, about 52% [1.83 million metric tons per year (Mt/yr)] of domestic primary aluminum smelting capacity, including idle potlines at operating smelters, was not being utilized.

In 2009, aluminum recovered from purchased scrap decreased to 2.71 Mt. Of this recovered metal, 56% came from new (manufacturing) scrap, and 44% came from old (obsolete aluminum products) scrap. Aluminum used beverage cans (UBCs) accounted for 22% of the reported old scrap consumed.

Apparent consumption fell by 13% compared with that in 2008 (table 1). The container and packaging industry surpassed the transportation industry as the leading market for aluminum products in Canada and the United States. The container and packaging industry accounted for 26.5% of United States and Canadian metal shipments; transportation, 23.7%; building and construction, 11.9%; electrical, 7.3%; machinery and equipment, 5.9%; consumer durables, 5.7%; and other uses, 3.1%. Exports accounted for 15.9% of shipments from producers in Canada and the United States in 2009 (table 6).

The 2009 average U.S. market price of primary aluminum ingot decreased by 34% to \$0.794 per pound from \$1.205 per pound in 2008 (table 8). With the onset of the global economic crisis in the fourth quarter of 2008, the average monthly price fell from \$1.29 per pound in August 2008 to \$0.71 per pound at yearend 2008. The price reached a low of \$0.629 in February 2009 and remained below \$0.75 per pound through June when it began to trend upward, reaching an average of \$1.04 per pound in December.

At yearend 2009, total world inventories of aluminum of 7.12 Mt, as reported by the International Aluminium Institute (IAI) and the London Metal Exchange Ltd. (LME), were 26% higher than those at yearend 2008. Total aluminum inventories of 2.23 Mt reported by the IAI were 25% lower than those at yearend 2008. Combined inventories of aluminum metal and alloys held by the LME increased by 82% to reach 4.89 Mt (London Metal Exchange Ltd., 2008, 2009; International Aluminium Institute, 2010).

Primary aluminum was produced in 43 countries in 2009. China, Russia, Canada, and Australia, in decreasing order of

metal produced, accounted for 58% of total world production. World primary metal production decreased by 6% compared with that of 2008 primarily owing to declines in production in the United States [931,000 metric tons (t)], Russia (375,000 t), Germany (314,000 t), China (300,000 t), Norway (228,000 t), Brazil (125,000 t), Canada (90,000 t), the United Kingdom (73,000 t), and Ukraine (63,000 t). These declines were partially offset by increased production in Oman (302,000 t), India (93,000 t), and the United Arab Emirates (62,000 t) as new smelters and expansions were commissioned in these countries. The United States ranked fifth (down from fourth) leading producer of primary aluminum.

Production

Primary.—Owing to declining demand and falling prices, several smelters were closed or reduced production. In efforts to remain competitive at relatively low prices, a number of new power contracts were negotiated.

Alcoa Inc. (Pittsburgh, PA) closed its 215,000-metric-ton-per-year (t/yr) smelter at Alcoa, TN, citing declining prices and lower demand. One potline was shut down in January, with the remainder of production ceasing by the end of March (Alcoa Inc., 2009e).

In January, Alcoa signed an amended power sales agreement with the Bonneville Power Administration (BPA) for power to its 278,000-t/yr Intalco smelter at Ferndale, WA, replacing the contract that had been nullified by the U.S. Court of Appeals for the Ninth Circuit in 2008 (Bonneville Power Administration Journal, 2009). In December, Alcoa and the BPA signed a new power supply contract that would increase the power provided to the smelter to an average 320 megawatts (MW) by March 2010 from an average 285 MW. The contract was divided into two phases, the first extending through May 2011, and the second phase lasting an additional 5 years. The second phase would be contingent on several factors, including resolution of earlier concerns of the court. Alcoa agreed to maintain an average of 528 full-time employees at the smelter through 2016 (Alcoa Inc., 2009b; Bonneville Power Administration Journal, 2010).

In January, Alcoa signed a power supply contract with the New York Power Authority (NYPA) to supply Alcoa's two smelters at Massena, NY. The 30-year contract would start with the expiration of the current contract in 2013 and included a 10-year extension option. The terms of the contract required a modernization project to reduce emissions and increase total capacity to 278,000 t/yr from 255,000 t/yr at the two smelters. In May, Alcoa closed the 125,000-t/yr Massena East smelter. The low price of aluminum was cited as the reason for the closure. In an agreement with NYPA, Alcoa retained 250 of the 420 affected employees to prepare the shuttered plant for the modernization project (Alcoa Inc., 2009d, i).

In March, Century Aluminum Co. (Monterey, CA) closed one potline at the 244,000-t/yr smelter at Hawesville, KY, reducing production by approximately 50,000 t/yr. Low aluminum prices were cited as the reason for the closure (Century Aluminum Co., 2009b). In May, Century closed an additional 31 pots at the smelter, but at the end of July, restarted 21 pots as aluminum prices increased (Platts Metals Week, 2009b, c). Also in July, Century announced that a new power supply contract for the Hawesville smelter had been signed with Big Rivers Electric Corp. (Henderson, KY) and E.On USA (Louisville, KY). The contract replaced the previous contract and would last through 2023, supplying enough power to operate the smelter at full capacity (Century Aluminum Co., 2009a).

Century closed its 270,000-t/yr smelter in Ravenswood, WV, at the end of February. The company had previously shut down one potline at the smelter in December 2008 in response to declining prices for aluminum (Century Aluminum Co., 2009c).

In February, Columbia Falls Aluminum Co. (CFAC) (Columbia Falls, MT) and the BPA negotiated an amended power contract, the original contract having been overturned by the court. The new contract included provisions for CFAC to continue production from one-half of one potline at its 168,000-t/yr smelter at Columbia Falls through June. The company had previously announced that all production would be shut down by the end of February because of the court ruling and declining aluminum prices (Bonneville Power Administration Journal, 2009). In July, CFAC announced that it would continue to operate one-half of one potline through September. A second short-term power supply contract was obtained with the BPA that enabled the smelter to operate while the parties continued to negotiate a long-term power supply contract (Platts Metals Week, 2009d). A long-term power contract was not achieved, however, given the constraints of the court order that prohibited a contract from benefiting CFAC at the expense of higher rates for other consumers, and all production was shut down at the end of October (Jamison, 2009).

On January 28, a power outage at Noranda Aluminum Holding Corp. (Franklin, TN) caused by severe weather forced the shutdown of approximately 75% of the capacity of its 250,000-t/yr smelter at New Madrid, MO. At the beginning of May, the smelter was operating at more than 50% of capacity, and the restart of the final potline was initiated in October, with production at full capacity expected early in 2010 (Noranda Aluminum Holding Corp., 2009a, b, c, p. 1).

In May, Ormet Corp. cut back production at its 265,000-t/yr smelter at Hannibal, OH, and by early August had closed two of six potlines. A shortage of alumina provided by Glencore International AG (Baar, Switzerland) was cited as the reason for the shutdown. Glencore had informed Ormet that alumina deliveries to the Hannibal smelter from the temporarily closed Windalco refinery in Jamaica would stop in April. Glencore stated that the tolling agreement with Ormet allowed it to cease deliveries without supplying alumina from an alternative source. The tolling agreement was terminated as a result of an arbitration ruling, freeing Ormet to obtain alumina from another supplier to enable operation of four potlines at least through yearend 2010. Ormet also secured a power contract with

American Electric Power Co. Inc. (Columbus, OH), effective September 2009 through yearend 2018, and extended through May 31, 2011, the labor contract with the United Steelworkers of America, which had been set to expire at yearend (Ormet Corp., 2009a, p. 2; b).

In July, Rio Tinto Alcan Inc. announced that a new power supply contract had been signed with Big Rivers Electric and E.On. The contract replaced the previous contract and would last through 2023, supplying enough power to operate the 196,000-t/yr Sebree, KY, smelter at full capacity (Rio Tinto Alcan Inc., 2009a). A project to replace the anode furnace at the Sebree smelter was being considered, and a decision was expected in 2010. The existing anode furnace was 35 years old and replacing it would reportedly enhance the smelter's future competitiveness. The United Steelworkers union and Rio Tinto agreed to a 5-year contract through yearend 2014, which had been a stated prerequisite of Rio Tinto to consider any capital investment at the smelter (Platts Metals Week, 2009a, g).

Demolition of buildings at Vancouver Aluminum Co.'s smelter in Vancouver, WA, which started in 2008, was completed in February. The 116,000-t/yr smelter was built in 1940 and was last operated in 2002 when it was shut down as a result of high power prices. The smelter was last owned by Evergreen Aluminum (a subsidiary of Glencore) but Alcoa had retained ownership of several fabrication buildings and the adjacent land and reportedly agreed to be responsible for environmental damages that occurred prior to the sale of the smelter in 1987. Remediation was underway, and when completed, the site would be sold to the Port of Vancouver for other industrial use (Washington State Department of Ecology, 2007; Alcoa Inc., 2008).

Secondary.—In the fourth quarter of 2009, Imperial Aluminum LLC reopened secondary smelters in Minerva, OH, and Scottsboro, AL. Imperial acquired the smelters following the December 2008 bankruptcy of their previous owner, Commercial Alloys Inc. Each smelter was reported to have a capacity of 40,800 t/yr (Schaffer, 2009).

Spectro Alloys closed an undisclosed amount of secondary smelting capacity in March as a result of declining demand from the automotive industry. The smelter, which produced alloys commonly used in the automotive industry, had a capacity of 110,000 t/yr. Numerous other secondary smelters reportedly were cutting production in the wake of the bankruptcy proceedings of General Motors Corp. and Chrysler LLC, as the automakers and their suppliers shut production for an extended period of time during the first half of 2009 (Petersen, 2009b; Petersen and others, 2009).

Consumption

Apparent consumption of aluminum in the United States declined by 13% in 2009 compared with that in 2008. Shipments of aluminum by United States and Canadian producers to their combined domestic markets declined by 21% in 2009 compared with the amount shipped in 2008. Shipments of aluminum for containers and packaging, the leading end use, declined by 4% compared with those in 2008. Shipments decreased in the transportation sector by 32%, consumer durables by 25%,

building and construction by 18%, electrical by 15%, and the machinery sector by 31%.

The decline in shipments of aluminum to the transportation sector resulted primarily from a reduction in automobile production. Production of light vehicles in North America declined by 32% in 2009 compared with production in 2008. Light vehicle production in all months of 2009 except November and December declined compared with production in the same month of 2008. Production in the first half of 2009 declined by more than 50% compared with production in the first half of 2008, while factories were shut down for an extended time during the bankruptcies of General Motors and Chrysler (CSM Worldwide Inc., 2009, 2010).

Increased aircraft production partially offset the decline in shipments of aluminum for use in transportation to automakers. The Boeing Co. (Chicago, IL) reported that deliveries of commercial aircraft were 28% higher than those in 2008. The reestablishment of normal operations after a 2-month strike during 2008 and continued modernization of fleets by commercial airlines to replace older aircraft with more fuel efficient models were reasons cited for the increased aircraft production (Boeing Co., The, 2010, p. 3–4).

The decline in aluminum shipments for use in building and construction was mainly a result of reduced home construction. The U.S. Census Bureau and the U.S. Department of Housing and Urban Development jointly reported that housing starts were down by 39% in 2009 compared with starts in 2008. The number of houses completed during 2009 was 29% fewer than the number completed in 2008 (U.S. Census Bureau, 2010b). Spending on nonresidential construction during 2009 decreased by 12% compared with this type of spending in the prior year (U.S. Census Bureau, 2010a).

A study commissioned by The Aluminum Association Inc. showed that the aluminum content of light vehicles manufactured in 2009 averaged 112 kilograms (kg) [248 pounds], and accounted for 8.6% of the vehicle weight, compared with 5.1% in vehicles manufactured in 1990. The study projected that the aluminum content in automobiles will average 136 kg (300 pounds) by 2020. The growth in the use of aluminum in automobiles was attributed to substitution for steel in engine blocks, hoods, steering knuckles, and wheels. Reduction in vehicle weight to meet new fuel efficiency regulations in the United States and other nations was cited as the reason for growth in aluminum usage (Light Metal Age, 2009, p. 44).

Stocks

The Aluminum Association reported the combined inventories of aluminum ingot, mill products, and scrap of United States and Canadian producers declined by 23% to 937,000 t at yearend 2009 from 1.22 Mt at yearend 2008 (Aluminum Association Inc., The, 2010). The LME reported that primary aluminum metal ingot stocks at LME U.S. warehouses increased by 94% to 2.02 Mt at yearend 2009 from 1.05 Mt at yearend 2008. At yearend 2009, LME warehouses in the United States also held about 180,000 t of North American special aluminum alloy contract (NASAAC) metal ingot, a 27% decrease from the

245,000 t held at yearend 2008 (London Metal Exchange Ltd., 2008, 2009).

Prices

The monthly average U.S. market price of primary aluminum metal, as reported by Platts Metals Week, started the year at \$0.676 per pound in January and stayed below \$0.750 per pound until July, when the price began a general upward trend for the remainder of the year as the impacts of the financial crisis started to ebb, reaching \$1.038 per pound in December. The annual average price in 2009 decreased to \$0.794 per pound from \$1.205 per pound in 2008 as demand increased from the lowest levels during the financial crisis but did not recover to precrisis levels. The LME monthly average cash prices for primary aluminum ingot followed the same general trend as the U.S. market price. The 2009 annual average LME cash price for high grade primary aluminum ingot decreased to \$0.755 per pound from \$1.167 per pound in 2008. The indicator prices for selected secondary aluminum ingots and aluminum scrap, as published in American Metal Market, followed the same trend as primary ingot prices (table 8).

Foreign Trade

Exports of crude aluminum decreased by 15% and exports of semifabricated aluminum materials decreased by 21%, compared with those of 2008 (table 9). Net exports of 1.22 Mt of scrap decreased by 18% compared with the amount in 2008. About 74% of total U.S. exports (crude, semifabricated, and scrap) in 2009 were shipped to China, Canada, and Mexico. Scrap accounted for 61% of total exports, 59% of which went to China (table 10).

In 2009, total net imports of unmanufactured aluminum-base materials increased by 53% compared with net imports in 2008. Imports for consumption of crude aluminum increased by 4%, while imports of semifabricated aluminum materials (plates, sheet, pipes, bars, etc.) decreased by 14% compared with those of 2008 (table 11). Canada remained the leading source country, accounting for 63% of the total imports in 2009, and Russia continued to be the second ranked supplier, accounting for 9% of total imports of aluminum (table 12).

World Industry Structure

Production.—World primary aluminum production decreased by 4% in 2009 compared with that of 2008, corresponding to smelter closures in the wake of the financial crisis (table 13). China, Russia, Canada, and Brazil, in decreasing order of production, accounted for 58% of total world primary aluminum production.

Stocks.—Owing to the continued collapse of demand that began in the second half of 2008, yearend global inventories of crude aluminum increased by 40% from the yearend 2008 level. Unwrought aluminum inventories held by member producers of the IAI decreased by 28% to 1.20 Mt at yearend 2009 from 1.68 Mt at yearend 2008. Unwrought aluminum is defined by the IAI as aluminum in its basic form made from primary metal or from scrap and that is unworked in the metallurgical sense. Total IAI

aluminum inventories [unwrought aluminum plus unprocessed scrap, metal in process, and finished semifabricated (mill) products] decreased by 25% to 2.23 Mt at yearend 2009 from 2.96 Mt at yearend 2008 (International Aluminium Institute, 2010).

Yearend 2009 inventories of primary aluminum metal held by the LME increased by 98% to 4.62 Mt from 2.34 Mt at yearend 2008; aluminum alloy inventories decreased by 18% to 84,500 t from 104,000 t; and NASAAC ingot inventories decreased by 27% to 180,000 t from 245,000 t (London Metal Exchange Ltd., 2008, 2009).

Mergers and Acquisitions.—Alcoa completed its acquisition of the Lista and Mosjoen primary smelters in Norway from Orkla ASA in March. The smelters had capacities of 94,000 t/yr and 188,000 t/yr, respectively. The deal also included an anode plant adjacent to the Mosjoen smelter. In exchange, Orkla received Alcoa's 45% share of Sapa Extrusions Inc. to reach 100% ownership (Alcoa Inc., 2009c).

At the end of July, Alcoa completed the sale of its interest in Rio Tinto plc to Aluminum Corp. of China (Chinalco). In February 2008, Alcoa and Chinalco had jointly acquired 12% of the stock in Rio Tinto. A change in strategy in light of the economic conditions was cited as the reason for the sale (Alcoa Inc., 2009h).

Rio Tinto sold its half of the Ningxia smelter in China to its joint-venture partner, Qingtongxia Aluminium Group Co. Ltd. in January. The smelter had a capacity of 160,000 t/yr (Rio Tinto plc, 2009a).

In February, Klesch & Co. Ltd. (London, United Kingdom) completed the acquisition of smelters at Delfzijl, Netherlands, and Voerde, Germany, from Corus Group plc (London). Each smelter had a capacity of 100,000 t/yr (Klesch and Co. Ltd., 2009).

As part of a financial restructuring deal, the Government of Montenegro received ownership of 29.4% of Kombinat Aluminijuma Podgorica and Bauxite Mines (KAP). Central European Aluminum Co. remained the managing partner of the joint venture with 29.4% ownership, with the remainder owned by other investors. Assets owned by KAP included a 120,000-t/yr smelter and a 280,000-t/yr alumina refinery at Podgorica and a 700,000-t/yr bauxite mine at Kutsko Brdo (Central European Aluminum Co., 2009, 2010).

Citing declining demand, lower prices, and lack of credit, Aleris International Inc. filed for chapter 11 bankruptcy protection in February. The secondary aluminum producer was able to continue operations through a debtor-in-possession facility. The company continued operating under bankruptcy protection throughout the year (Aleris International Inc., 2009).

Sapa Group acquired the assets of Indalex during the liquidation of Indalex. Indalex had filed for bankruptcy citing credit issues and a decline in business to automotive and construction markets. The Indalex assets in the United States included six extrusion plants and a secondary casthouse. Indalex also had five extrusion plants and a casthouse in Canada (Petersen, 2009a; Sapa Group, 2009).

World Review

Australia.—The Government of Australia was moving forward with a proposed cap-and-trade plan in an effort to

reduce emissions of carbon dioxide and other greenhouse gases. The proposal included provisions for the aluminum industry and other emission-intensive industries to mitigate the cost increases during the first several years (Australian Department of Climate Change, 2009).

Alcoa and its joint-venture partners CITIC Ltd. (22.5%) and Marubeni Aluminium Australia Ltd. (22.5%) closed 53,000 t/yr of capacity at the Portland Aluminium smelter in response to declining prices and demand for aluminum. The first 15,000 t/yr of capacity was closed in December 2008, and an additional 38,000 t/yr was shut down by July 2009. The Portland smelter had a capacity of 358,000 t/yr (Alcoa Inc., 2009j).

Bosnia and Herzegovina.—Aluminij d.d. Mostar shut down approximately 35,000 t/yr of capacity at its 135,000-t/yr smelter during the early part of 2009 as a result of the global financial crisis and subsequent decline in prices. The company subsequently announced that production would be returned to full capacity during the fourth quarter (CRU Aluminium Monitor, 2009h).

Brazil.—In April, Vale SA closed all primary smelting capacity at the Valesul smelter in Santa Cruz. The 95,000-t/yr smelter had been operating at only 40% capacity since October 2008, using only power from its onsite powerplant. Starting in April 2009, the casthouse was used to make extrusion billets from scrap and primary ingot purchased from other smelters (Vale SA, 2009).

Brazil recycled 91.5% of all aluminum beverage cans sold during 2008. Brazil collected and recycled 165,800 t of UBCs, the equivalent of 12.3 billion aluminum cans. Although the recycling rate declined from 96.5% in 2007, for the eighth consecutive year, Brazil had the highest aluminum can recycling rate among countries that do not have mandatory recycling laws (Associação Brasileira do Alumínio, 2009).

Cameroon.—Production at the 100,000-t/yr Alucam smelter was cut by 20% compared with production in 2008 in response to declining prices and energy supply issues. The smelter was a joint venture between the Government of Cameroon and Rio Tinto (Rio Tinto plc, 2009b, 2010a, p. 15).

Canada.—In response to market uncertainty and financing concerns, Rio Tinto announced delays of several expansion projects. Work on expansion of the Kitimat, British Columbia, smelter was progressing at a slower pace and would not be completed by 2011. A revised date of completion for the project was not announced. When completed, the capacity of the smelter would increase to 400,000 t/yr from 277,000 t/yr. The prefeasibility study for expanding the Alma, Quebec, smelter to 570,000 t/yr from 400,000 t/yr was put on hold. Despite financing concerns that slowed other expansion projects, construction of a smelter at Saguenay, Quebec, was moving forward. When completed in 2012, the smelter would have an initial capacity of 60,000 t/yr, and two additional phases could increase capacity to 400,000 t/yr. The Saguenay smelter would employ new technology designed to increase smelter efficiency (Rio Tinto plc, 2010b, p. 63).

At the end of April, Rio Tinto permanently closed the 52,000-t/yr Beauharnois, Quebec, smelter. The high cost of operation was cited as the reason for the closure of the smelter that had opened in 1943 (Rio Tinto plc, 2009c, p. 3).

China.—China's Government purchased 290,000 t of aluminum in January from producers in an effort to remove surplus supplies from the market and prop up prices. The purchases were made from Chinalco and seven other companies owned in part by provincial governments. The stockpiling plan, which had been announced in December 2008, was part of a broader effort by the Strategic Reserve Bureau (SRB) to purchase metals from producers during the plunge of commodity prices during the global financial crisis. Despite the effort to stockpile surplus metal, many primary smelters cut production during the early part of the year (China Metal Market—Alumina and Aluminum, 2009k). In March, in addition to the SRB stockpile, the government of Henan Province announced plans to purchase 500,000 t of primary aluminum from provincial smelters. Henan Province accounts for approximately one-quarter of China's aluminum production (China Metal Market—Alumina and Aluminum, 2009g). The government of the Guangxi Zhuang Autonomous Region purchased 50,000 t of aluminum in March for a stockpile in an effort to provide support to smelters in the region (China Metal Market—Alumina and Aluminum, 2009d).

As prices on the Shanghai exchange increased in April, many smelters in China restarted capacity that had been idled during the fourth quarter of 2008. Smelters in Henan Province were reported to have restarted 800,000 t/yr of capacity as a result of higher aluminum prices and preferential power rates from the state-owned power company contingent upon increased employment and production. More than 200,000 t/yr of capacity was also restarted in Shanxi Province as the price for aluminum rebounded during April and May. Numerous smelters in other provinces were also reported to be restarting capacity during the same time (China Metal Market—Alumina and Aluminum, 2009i).

In April, the Henan Wanji Aluminum Smelter Co. restarted 65,000 t/yr of the 480,000 t/yr of capacity at the smelter in Wanji, Henan Province. The smelter had shut down production at the end of 2008 as prices collapsed (CRU Aluminium Monitor, 2009c). Also in April, Meishan Qimingxing Aluminum Co. restarted 80,000 t/yr capacity at its 125,000-t/yr smelter in Meishan Qimingxing, Sichuan Province as prices for aluminum increased. By August, all potlines had been restarted at the smelter. The smelter had shut down one-quarter of its capacity in December 2008 as prices declined during the global financial crisis (CRU Aluminium Monitor, 2009c, h). In May, Henkang Aluminium Co. restarted 240,000 t/yr of capacity at its 600,000-t/yr Yugang Longquan smelter in Henan Province. The potline had been completed and commissioned in 2008 but was shut down in December 2008 as a result of declining prices (CRU Aluminium Monitor, 2009d). Guizhou Shuangpai Aluminum Co., which was shut in October 2008, restarted production of aluminum from the 100,000-t/yr Lupanshui smelter in July as prices for aluminum increased. The restart was also enabled by a preferential power rate to the smelter (CRU Aluminium Monitor, 2009f).

Chinalco restarted primary aluminum production from its smelter in Zibo, Shandong Province, in August. Chinalco had shut down the 200,000-t/yr smelter in late 2008 as prices

declined (China Metal Market—Alumina and Aluminum, 2009j).

China's Government announced that new capacity expansions of aluminum smelters would not be permitted for 3 years. The Government also stated that 800,000 t/yr of outdated capacity would be eliminated by yearend 2010. The action was part of a policy aimed at reducing excess capacity and eliminating inefficient operations in energy-intensive industries. Strict control over the export of aluminum and other energy- and resource-intensive products was also part of the policy announced (China Metal Market—Alumina and Aluminum, 2009c).

Chinalco had shut down two-thirds of the 135,000-t/yr capacity at its smelter in Pingguo, Guangxi Province, at the end of 2008 and planned to operate at that level throughout the year. Technological advantages at the smelter were offset by high power prices in the region (China Metal Market—Alumina and Aluminum, 2009b). Sichuan Meishan Aostar Aluminum Co. cut production to about 30% of its 250,000-t/yr capacity. The smelter in Guangyuan, Sichuan Province, had closed one-half of its production in October 2008 as prices declined and announced the additional shutdown early in 2009. In September, the smelter restarted capacity to bring total production capacity to 180,000 t/yr (CRU Aluminium Monitor, 2009g, i).

In January, Vimetco NV cut production at its 660,000-t/yr smelter in Zhongfu, Henan Province, to 360,000 t/yr as a result of price declines and reduced demand (Vimetco NV, 2009). Also in January, Shanxi Guanlu Aluminum Co. shut down 40,000 t/yr of capacity at its 117,000-t/yr smelter in Guanlu, Shanxi Province. Production was restarted by the end of November (CRU Aluminium Monitor, 2009j).

In March, Yin Hai Aluminum Co. shut down one-third of the capacity of its 250,000-t/yr smelter in Laibin, Guangxi Province, for maintenance work. Production was gradually restarted from July through the end of September (CRU Aluminium Monitor, 2009i; Platts Metals Week, 2009f).

Bosia Minerals Group Co. Ltd. was expanding capacity of its smelter in Aba, Sichuan Province, to 200,000 t/yr from 110,000 t/yr. Production from existing pots reached full capacity during the year after commissioning in December 2008 (CRU Aluminium Monitor, 2009d).

The Qinghai Yellow River Hydropower Aluminum Co. smelter in Qinghai Province was put into production in June. The joint venture between Chinalco and Beijing Xinheng Group had a capacity of 250,000 t/yr, and an expansion to 500,000 t/yr was under construction (China Metal Market—Alumina and Aluminum, 2009a).

Qingtongxia Aluminum Co. completed construction of a 270,000-t/yr smelter in Yinchuan, Ningxia Autonomous Region, and started production in June. Two more potlines, each with 270,000 t/yr of capacity, were planned, but details on construction were not available (CRU Aluminium Monitor, 2009e).

Huanghe Xinye Aluminum Co. completed a 250,000-t/yr smelter in Xining, Qinghai Province, and started production in June. The smelter reached full production capacity by yearend. A second potline that would increase capacity to 500,000 t/yr was proposed, but a construction schedule was not available (CRU Aluminium Monitor, 2009k).

Henan Shenhua Group completed its 250,000-t/yr smelter expansion project in July but planned to delay commissioning because of market conditions. The project increased capacity of the smelter in Yongchen, Henan Province, to 650,000 t/yr (China Metal Market—Alumina and Aluminum, 2009h; CRU Aluminium Monitor, 2009d).

In July, Henan Linfeng Aluminum Co. completed an expansion project that increased capacity of the smelter in Linzhou, Henan Province, to 355,000 t/yr from 105,000 t/yr. The new potline was producing near full capacity by yearend (China Metal Market—Alumina and Aluminum, 2009f).

In August, Sanmenxia Tianyuan Aluminum Co. announced plans to increase production. The smelter in Sanmenxia, Henan Province, had shut down 30,000 t/yr of capacity in the last quarter of 2008 as prices declined. An expansion project that increased capacity to 140,000 t/yr from 100,000 t/yr was completed in 2009. Plans did not specify how much of the smelting capacity would be in production (Platts Metals Week, 2009h).

By the end of November, Gansu Aluminum Co. restarted its 70,000-t/yr smelter, which had been closed earlier in the year. The company was also moving forward with plans to construct a new potline at its smelter in Gansu Province by yearend 2010 with a capacity of 115,000 t/yr (CRU Aluminium Monitor, 2009j).

In February, China Guodian Corp. started construction of a smelter and captive powerplant in Pingxiang, Jiangxi Province. The smelter would have a capacity of 300,000 t/yr, and the powerplant would supply 600 MW of electricity. The project was expected to be completed in early 2012 (China Metal Market—Alumina and Aluminum, 2009e).

Xinjiang Tianlong Aluminum Co. planned to expand the capacity of the smelter in Xinjiang Province to 150,000 t/yr from 44,000 t/yr; a schedule for the project was not available (CRU Aluminium Monitor, 2009f).

France.—Production at Rio Tinto's 138,000-t/yr St. Jean de Maurienne smelter, where production cuts were implemented late in 2008 in response to declining prices, declined by 22% compared with production in 2008. Production increased during the third quarter of the year compared with that of the second quarter at the 261,000-t/yr Dunkerque smelter (Rio Tinto plc, 2009b, 2010a, p. 15).

Germany.—In January, Norsk Hydro ASA cut production at the 230,000-t/yr Neuss smelter by 30,000 t/yr as a result of falling prices and demand. The company selected the Neuss smelter for the cutback mainly because of the high cost of electricity in Germany (Norsk Hydro ASA, 2009c). During the second quarter, the production rate was reduced further to 50,000 t/yr (Norsk Hydro ASA, 2009e).

During the first quarter of the year, Trimet Aluminium AG closed 50,000 t/yr of 170,000 t/yr of capacity at the Essen smelter and 40,000 t/yr of 132,000 t/yr of capacity at the Hamburg smelter (CRU Aluminium Monitor, 2009a). At midyear, the company restarted 35,000 t/yr of capacity at the Essen smelter, as orders increased from its customers, mainly German automobile parts manufacturers (Platts Metals Week, 2009i).

Greenland.—The Government of Greenland postponed making a decision on a joint venture with Alcoa to construct a smelter and two hydroelectric powerplants to supply the smelter

until at least spring 2010, citing more time to analyze the proposal and a recommendation by a labor group against taking an ownership position in the project (Jensen, 2009).

Guyana.—United Company RUSAL (Rusal) had put on hold plans to construct an alumina refinery and aluminum smelter powered by a hydroelectric plant in light of the economic conditions. Construction of the Rusal project had been scheduled to start in 2011 (Media Corp. Pte. Ltd., 2009).

Iceland.—Century announced plans to resume construction on a 360,000-t/yr smelter at Helguvik in spring 2010. Construction was halted in the fourth quarter of 2008 as a result of financing concerns. The smelter, which would be powered by a geothermal powerplant, would have four potlines, with the first potline expected to produce in early 2012 (Vaporean, 2009).

India.—National Aluminum Co. of India Ltd. (Nalco) continued with the startup of an expansion to the Angul smelter that had begun in December 2008. By July, 150 of the 240 new pots were operating, and full production was expected by yearend. The expansion increased capacity to 460,000 t/yr from 345,000 t/yr (National Aluminum Co. of India Ltd., 2009, p. 14).

Hindalco Industries Ltd. completed an expansion of the Hirkud smelter in August that increased the capacity of the smelter to 155,000 t/yr from 143,000 t/yr. The company started another expansion project that would increase capacity of the smelter to 213,000 t/yr, part of which would be completed by July 2010, and the remainder, by 2012. Hindalco continued to plan for the Aditya aluminum complex in Orissa. The complex would have a 359,000-t/yr smelter, a 1.5-Mt/yr alumina refinery, and a 900-MW captive powerplant. Funding for about one-half of the cost for the smelter and powerplant was committed. Completion of the smelter was planned for October 2011, although the refinery completion was delayed to June 2013 from January 2013. Construction of the 359,000-t/yr Mahan smelter and 900-MW powerplant was underway, with production expected to start in July 2011. Planning continued for the Jharkand smelter, but startup would be delayed until June 2013. The smelter would have a capacity of 359,000 t/yr, and a 900-MW powerplant was also being built at the site (Hindalco Industries Ltd., 2009).

Vedanta Resources plc shut down production from one 100,000-t/yr potline at the Bharat smelter during the first quarter of 2009. This shutdown followed the closure of the 38,000-t/yr Madras smelter at yearend 2008. Ramp up of the first phase of the Jharsuguda I smelter, which had started in 2008, continued through the year and was expected to reach full production capacity of 250,000 t/yr by March 2010. An expansion of the Jharsuguda I smelter, which would increase capacity to 500,000 t/yr by the end of March 2011, was under construction, and production from completed pots started in June. Construction of the Jharsuguda II smelter progressed, with initial production planned for March 2010 and full production expected in September 2011. The smelter would have a capacity of 125,000 t/yr when completed. Expansion of the Korba smelter was started, with production expected to begin in October 2010 and full production expected in 2012. The project would increase capacity to 675,000 t/yr from 350,000 t/yr (Vedanta Resources plc, 2009a, p. 13, 2009b).

Ashapura Minechem was planning to construct an aluminum complex in Rataigiri, Maharashtra. The complex would include

a 500,000-t/yr alumina refinery and a 150,000-t/yr aluminum smelter with a 330-MW captive powerplant. A construction schedule was not announced (CRU Alumina Monitor, 2009a).

Anrak Aluminium Ltd. was progressing with plans to construct a 1.5-Mt/yr alumina refinery, a 250,000-t/yr aluminum smelter, and a 90-MW powerplant in Vishakhapatnam, Andhra Pradesh. A construction schedule was not available (CRU Alumina Monitor, 2009a, b).

Iran.—The Iranian Mines and Mining Industries Development and Renovation Organization (IMIDRO) opened the 147,000-t/yr Hormzal smelter in October. The new smelter was constructed in Bandar Abbas, adjacent to IMIDRO's 110,000-t/yr Almahdi smelter. IMIDRO planned to develop various downstream industries to use the aluminum (Tehran Times, 2009).

South Aluminium Co. (Salco) started construction of a 103,000-t/yr smelter east of Asalouyeh, which was expected to be completed in mid-2011. Plans called for the smelter capacity to be expanded to 310,000 t/yr at a later date. The smelter would be powered by electricity generated by natural gas from the nearby South Pars field. Salco was a joint venture between IMIDRO and Ghadir, an Iranian investment firm (Metal Bulletin, 2009).

Italy.—In November, Alcoa announced that it would temporarily close the Fusina and Portovesme smelters, owing to a ruling by the European Commission that power contracts between Alcoa and the Italian Government were out of compliance with European Union regulations. However, Alcoa continued to operate the smelters through yearend while the ruling was being appealed and solutions were discussed with the Government. The Fusina smelter had a capacity of 44,000 t/yr, and the Portovesme smelter, 150,000 t/yr (Alcoa Inc., 2009f, g).

Kazakhstan.—Construction on an expansion to increase capacity to 250,000 t/yr from 125,000 t/yr at the Pavlodar smelter continued. In December, one-half of the new pots were put into operation. Completion of the project was planned by the end of May 2010 (Eurasian Natural Resources Group Inc., 2010, p. 19).

Montenegro.—After a financial restructuring deal, Central European Aluminum Co. continued with a modernization project of the Podgorica smelter and alumina refinery expected to be completed by yearend 2010. Capacity of the smelter would increase to 156,000 t/yr from 120,000 t/yr, and capacity of the alumina refinery would increase to 400,000 t/yr from 280,000 t/yr (Central European Aluminum Co., 2009, 2010).

New Zealand.—A production cut that was implemented in mid-2008 in response to a transformer failure at the 365,000-t/yr Tiwai Point smelter was continued until mid-2009. Output from the smelter increased in the third quarter when repairs were completed (Rio Tinto plc, 2009b, 2010a, p. 15).

Nigeria.—Rusal cut production in 2009 from the Alcon smelter by 17% compared with production in 2008. The smelter was cited as having higher operating costs than other smelters owned by Rusal (United Company RUSAL, 2010).

Norway.—Production from the 171,000-t/yr smelter at Husnes was cut to 86,000 t/yr in March. Joint owners Norsk Hydro and Rio Tinto cited the decline of prices and reduced demand for the closure of the potline (Norsk Hydro ASA, 2009a).

Norsk Hydro permanently closed the 100,000-t/yr Soderberg potline at the Karmoy smelter in March. The closure was

required to comply with environmental regulations and was accelerated because of the decline in the price of aluminum. The closure of the Soderberg pots left approximately 170,000 t/yr of capacity at the Karmoy smelter. All other Soderberg potlines owned by Norsk Hydro had already been closed earlier (Norsk Hydro ASA, 2009d).

Norsk Hydro temporarily closed a 100,000-t/yr potline at the 360,000-t/yr Sunndal smelter in May as a result of price declines. The company selected the 40-year-old potline at the Sunndal smelter for closure because it was the oldest and most costly potline that it still operated (Norsk Hydro ASA, 2009b).

Oman.—Ramp up continued at the 360,000-t/yr Sohar smelter that started production in June 2008, and full production was achieved by yearend 2009. The smelter was a joint venture between Abu Dhabi Water and Electric Authority, Oman Oil Co. S.A.O.C., and Rio Tinto (Rio Tinto plc, 2010a, p. 15).

Qatar.—Qatar Aluminium Ltd. (Qatalum) (a joint venture between Norsk Hydro and Qatar Petroleum Co. Ltd. in Doha) announced the first production from the smelter in Mesaieed. Although construction was still progressing in parts of the 585,000-t/yr smelter, some pots were put into operation in December, and Qatalum planned to add production as pots were completed. Completion of construction and full operation of the smelter were scheduled for the second half of 2010 (Qatar Aluminium Ltd., 2009).

Romania.—Vimetcu cut production during the first quarter at the 300,000-t/yr smelter in Slatina to 240,000 t/yr as a result of price declines and reduced demand (Vimetcu NV, 2009).

Russia.—An accident at the Sayano-Shushenskaya powerplant on August 17 destroyed 3 of the powerplant's 10 turbines and damaged 3 others, killing 75 workers. The powerplant was the main supplier of power to Rusal's 537,000-t/yr Sayanogorsk and 300,000-t/yr Khakas smelters, supplying a total of 3,500 MW. The powerplant also supplied some power to Rusal's smelters at Krasnoyarsk and Novokusnetsk. The effect on the smelters was minimal, and all capacity was fully operational within hours of the accident, owing to backup power being secured from other sources (Tabereaux, 2009).

Rusal cut production from its smelters in Russia by 9% compared with production in 2008 as a result of lower aluminum prices. Most of the cuts were from the Bogoslovsk, Kandalaksha, Nadvoitsy, Novokunetsk, and Urals smelters, which had higher costs than other smelters owned by Rusal in Russia. Production cuts at these smelters were made in February and ranged from 26% to 39% compared with production in 2008 (United Company RUSAL, 2010).

As a result of financing constraints, Rusal announced plans to slow construction on its Taishet smelter. The Taishet smelter would have a capacity of 750,000 t/yr and was previously planned to start production by yearend 2009, with full operation by yearend 2011 (United Company RUSAL, 2009b). The company also cut construction spending on the Boguchansky hydroelectric powerplant project and delayed full production until 2012 (CRU Aluminium Monitor, 2009b).

Rusal completed a project to increase efficiency and reduce emissions from the 1-Mt/yr Krasnoyarsk smelter in September. The smelter uses Soderberg technology, and the project was

aimed at reducing atmospheric emissions of hydrocarbons and other airborne pollutants (United Company RUSAL, 2009a).

Saudi Arabia.—Alcoa and Saudi Arabian Mining Co. (Ma'aden) formed a joint venture to construct an aluminum complex with a 4.0-Mt/yr bauxite mine, a 1.8-Mt/yr alumina refinery, a 740,000-t/yr smelter, and a rolling mill. The mine would be at Al Ba'itha with bauxite transported by rail to Raz Az Zawr, where the refinery, smelter, and rolling mill would be built. Startup of the smelter and rolling mill were expected in 2013, and production from the mine and refinery would begin in 2014. Alcoa would own 20% of the operation, with Ma'aden owning 60%, and other partners owning the remaining 20% (Alcoa Inc., 2009a). Ma'aden had previously had a joint venture with Rio Tinto for the project, but Rio Tinto canceled its participation in the project amid financing constraints (Rio Tinto Alcan Inc., 2008).

South Africa.—As a result of power shortages in the country, Rio Tinto announced that plans for the proposed 720,000-t/yr Coega smelter were put on hold indefinitely. An electricity supply agreement with the state power company, Eskom, was terminated (Rio Tinto Alcan Inc., 2009b).

Sweden.—In 2009, Rusal cut production from the Kubal smelter by 38% compared with production in 2008. The smelter was cited as having higher operating costs than other smelters owned by Rusal (United Company RUSAL, 2010).

Tajikistan.—Tajik Aluminium Co. cut production from its 517,000-t/yr smelter by 40,000 t/yr in the first quarter of 2009. A power shortage and declining aluminum prices were cited as the reasons for the shutdown (Tajik Aluminium Co., 2009).

Ukraine.—In 2009, Rusal cut aluminum production from the Zaporozhye smelter by 56% compared with production in 2008. High costs were cited as the cause for the closure of the 113,000-t/yr smelter (United Company RUSAL, 2010).

United Arab Emirates.—Emirates Aluminium Ltd. announced that production had started from the first pot at its 700,000-t/yr smelter in Abu Dhabi. Work was progressing on the smelter, and full production from its 756 pots was not expected until at least December 2010. Emirates Aluminium was a partnership between Dubai Aluminium Co. Ltd. and Mubadala Development Co. (Emirates Aluminium Ltd., 2009).

United Kingdom.—The Anglesey smelter was permanently closed in September following the expiration of a power contract with a nuclear powerplant that was closing. The 150,000-t/yr smelter had been a joint venture between Kaiser Aluminum Corp. and Rio Tinto (Kaiser Aluminum Corp., 2009, p. 2).

Production at the 44,000-t/yr Lochaber, Scotland, and the 181,000-t/yr Lynemouth, England, smelters declined by 11% and 34% respectively, compared with production in 2008. Work on a modernization and expansion project of the Lochaber smelter that had been planned to begin during 2009 was deferred owing to the financial crisis (Rio Tinto plc, 2009b, 2010a).

Venezuela.—In December, power shortages forced the shutdown of two potlines totaling 50,000 t/yr of capacity at the 210,000-t/yr Alcasa smelter controlled by the state-owned Corporación Venezolana de Guayana (CVG). Starting in November, output at the Venalum smelter was also reduced slightly by reducing the amperage in the pots, but no pots were taken out of service. The country was affected by power shortages, and the Government ordered a reduction in power

consumption for several industries, including aluminum smelting to avert a crisis (Platts Metals Week, 2009e, j).

Outlook

Aluminum prices generally continued their upward trend in the first half of 2010 but remained volatile. While the increased prices beginning in the second half of 2009 contributed to the restarting of some smelting capacity outside the United States, domestic smelters generally maintained production levels established during the downturn of late 2008 and early 2009. The domestic capacity that closed during the crisis was not expected to restart until producers were more confident in a sustained recovery. As of June 1, 2010, about 50% (1.75 Mt/yr) of domestic primary aluminum smelting capacity was not being used. World demand for aluminum in 2010 was expected to remain at levels lower than in 2008 owing to declines in automobile manufacturing and home construction.

Consumer credit issues in the United States and Western Europe were expected to continue through 2010. The uncertainty of the impact of sovereign debt issues in Europe also raised concerns about consumer demand. Although consumption was recovering from the decline during the crisis, decreased demand for aluminum in developed economies still recovering from the economic events of 2008 could keep global aluminum production for the 2010–2012 period below the record-high 2008 production. Demand for aluminum in emerging economies was expected to increase as these economies continue to grow and recover from the effects of the global recession. However, policies aimed at restraining construction in China may slow the rate of growth of demand for aluminum in that nation.

Lack of credit to aluminum companies was expected to continue to cause delays in expansion projects in many parts of the world, although projects in regions with low power costs were moving forward. Relatively higher electricity prices in the United States diminished the likelihood of domestic smelters reopening in the near-term. New smelters constructed where power costs are relatively low were expected to replace production at high-cost smelters in the United States and other locations.

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TABLE 1
SALIENT ALUMINUM STATISTICS¹

	2005	2006	2007	2008	2009	
United States:						
Primary production:						
Quantity	thousand metric tons	2,481	2,284	2,554	2,658	1,727
Value	millions	\$4,980	\$6,110	\$6,880	\$7,060	\$3,030
Price, average, U.S. market, spot	cents per pound	91.0	121.4	122.2	120.5	79.4
Inventories (December 31):						
Aluminum industry ²	thousand metric tons	1,430	1,410	1,400	1,220 ^r	937
London Metal Exchange, U.S. warehouses ³	do.	209	228	463	1,290	2,200
Secondary recovery: ⁴						
New scrap	do.	1,950	2,290 ^r	2,250 ^r	1,960 ^r	1,520
Old scrap	do.	1,080	1,260 ^r	1,540 ^r	1,370 ^r	1,190
Total	do.	3,030	3,540	3,790 ^r	3,330 ^r	2,710
Exports, crude and semicrude	do.	2,370	2,820	2,840	3,280	2,710
Imports for consumption, crude and semicrude ⁵	do.	4,850 ^r	4,660 ^r	4,020 ^r	3,710 ^r	3,680
Supply, apparent ⁶	do.	8,480 ^r	8,190 ^r	7,990 ^r	6,900 ^r	5,840
Consumption, apparent ⁷	do.	6,530 ^r	5,900 ^r	5,740 ^r	4,940 ^r	4,320
World, production	do.	31,900	33,900	38,100 ^r	39,600 ^r	37,300 ^e

^eEstimated. ^rRevised. do. Ditto.

¹Data are rounded to no more than three significant digits except "Primary production: Quantity" and "Price, average, U.S. market, spot."

²Data from the Aluminum Association Inc.; includes ingot, semifabricated material, and scrap inventory levels for United States and Canadian producers.

³Includes aluminum alloyed material.

⁴Metallic recovery from purchased, tolled, or imported new and old scrap expanded for full industry coverage.

⁵Excludes scrap.

⁶Defined as domestic primary metal production plus secondary recovery plus imports minus exports plus adjustments for government and industry stock changes.

⁷Apparent supply less recovery from purchased new scrap.

TABLE 2
PRIMARY ANNUAL ALUMINUM PRODUCTION CAPACITY IN THE UNITED STATES, BY COMPANY¹

Company and location	Yearend capacity (thousand metric tons)		Ownership in 2009
	2008	2009	
Alcoa Inc.:			
Alcoa, TN ²	215	215	Alcoa Inc., 100%.
Badin, NC ²	120	120	Do.
Evansville, IN (Warrick)	309	309	Do.
Ferndale, WA (Intalco)	278	278	Do.
Frederick, MD (Eastalco) ²	195	195	Do.
Massena, NY (St. Lawrence) ²	125	125	Do.
Massena, NY	130	130	Do.
Mount Holly, SC	224	224	Alcoa Inc., 50.3%; Century Aluminum Co., 49.7%.
Rockdale, TX ²	267	267	Alcoa Inc., 100%.
Wenatchee, WA	184	184	Do.
Total	2,050	2,050	

See footnotes at end of table.

TABLE 2—Continued
PRIMARY ANNUAL ALUMINUM PRODUCTION CAPACITY IN THE UNITED STATES, BY COMPANY¹

Company and location	Yearend capacity (thousand metric tons)		Ownership in 2009
	2008	2009	
Century Aluminum Co.:			
Hawesville, KY	244	244	Century Aluminum Co., 100%.
Ravenswood, WV ²	170	170	Do.
Total	414	414	
Columbia Falls Aluminum Co., Columbia Falls, MT ²	168	168	Glencore International AG, 100%.
Goldendale Aluminum Co., Goldendale, WA ²	160	160	Private interest, 60%; employees, 40%.
Noranda Aluminum Holding Corp., New Madrid, MO	250	250	Apollo Management LP, 100%.
Ormet Primary Aluminum Corp., Hannibal, OH	265	265	Ormet Corp., 100%.
Rio Tinto Alcan Inc., Sebree, KY	196	196	Rio Tinto Alcan Inc., 100%.
Vanalco Inc., Vancouver, WA ³	116	--	Glencore International AG, 100%.
Grand total	3,620	3,500	

Do. Ditto. -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Idle.

³Demolition of smelter facilities completed in 2009.

TABLE 3
U.S. CONSUMPTION OF AND RECOVERY FROM PURCHASED NEW AND OLD ALUMINUM SCRAP, BY CLASS^{1, 2}

(Metric tons)

Class	Consumption	Calculated recovery	
		Aluminum	Metallic
2008:			
Secondary smelters	1,580,000	1,040,000 ^r	1,110,000 ^r
Independent mill fabricators ³	2,180,000	1,800,000	1,910,000
Foundries	77,300	63,300	67,700
Other consumers	8,760	7,770	7,800
Total	3,850,000	2,910,000 ^r	3,090,000
Estimated full industry coverage ^f	4,150,000	3,130,000	3,330,000
2009:			
Secondary smelters	1,090,000	782,000	836,000
Independent mill fabricators ³	1,870,000	1,530,000	1,620,000
Foundries	74,800	61,200	65,400
Other consumers	6,870	6,330	6,350
Total	3,040,000	2,380,000	2,530,000
Estimated full industry coverage	3,260,000	2,540,000	2,710,000

^rRevised.

¹Excludes recovery from other than aluminum-base scrap.

²Data are rounded to no more than three significant digits; may not add to totals shown.

³Includes plants previously categorized as "Integrated aluminum companies."

TABLE 4

U.S. STOCKS, RECEIPTS, AND CONSUMPTION OF PURCHASED NEW AND OLD ALUMINUM SCRAP AND SWEATED PIG IN 2009^{1,2}

(Metric tons)

Class of consumer and type of scrap	Stocks, January 1	Net receipts ³	Consumption	Stocks, December 31
Secondary smelters:				
New scrap:				
Extrusions	16,300 ^f	243,000	244,000	15,400
Can stock clippings	2,800	51,900	52,500	2,250
Other wrought sheet and clippings	1,300 ^f	140,000	140,000	1,090
Casting	711	31,800	31,900	588
Borings and turnings	1,170 ^f	62,500	62,600	1,110
Dross and skimmings	667	275,000	276,000	332
Total	22,900 ^f	805,000	807,000	20,800
Old scrap:				
Castings	1,670 ^f	92,600	93,100	1,150
Extrusion	1,560 ^f	49,400	49,400	1,530
Aluminum cans ⁴	--	38,700	38,700	--
Other wrought products	1,620 ^f	50,100	50,000	1,690
Auto shredder scrap	965 ^f	49,700	49,800	864
Total	5,810 ^f	280,000	281,000	5,230
Sweated pig	1	1,520	1,420	106
Grand total secondary smelters	28,700 ^f	1,090,000	1,090,000	26,100
Integrated aluminum companies, foundries, independent mill fabricators, other consumers:				
New scrap:				
Extrusion	7,090 ^f	457,000	450,000	14,900
Can stock clippings	982	184,000	183,000	1,280
Other wrought sheet and clippings	4,620	115,000	116,000	4,240
Casting	243	33,100	32,800	462
Borings and turnings	470 ^f	28,800	28,100	1,170
Dross and skimmings	1,660 ^f	136,000	131,000	7,150
Total	15,100	954,000	940,000	29,200
Old scrap:				
Castings	8,780	107,000	111,000	5,270
Extrusion	1,530	24,500	24,200	1,860
Aluminum cans ⁴	8,150	633,000	630,000	11,800
Other wrought products	3,590	120,000	119,000	4,900
Auto shredder scrap	82	454	454	82
Other	--	125,000	125,000	--
Total	22,100	1,010,000	1,010,000	23,900
Sweated pig	--	--	--	--
Grand total integrated aluminum companies, etc.	37,200	1,970,000	1,950,000	53,100
All scrap consumed:				
New scrap:				
Extrusion	23,400 ^f	701,000	694,000	30,300
Can stock clippings	3,780	236,000	236,000	3,530
Other wrought sheet and clippings	5,920 ^f	255,000	256,000	5,330
Casting	954	64,800	64,700	1,050
Borings and turnings	1,640 ^f	91,300	90,600	2,280
Dross and skimmings	2,330 ^f	412,000	406,000	7,480
Total	38,000 ^f	1,760,000	1,750,000	50,000
Old scrap:				
Castings	10,400 ^f	200,000	204,000	6,420
Extrusion	3,090 ^f	73,900	73,600	3,390
Aluminum cans ⁴	8,150	672,000	669,000	11,800
Other wrought products	5,210	170,000	169,000	6,590
Auto shredder scrap	1,050	50,200	50,300	946
Other	--	125,000	125,000	--
Total	27,900 ^f	1,290,000	1,290,000	29,100
Sweated pig	1	1,520	1,420	106
Grand total all scrap consumed	65,900 ^f	3,050,000	3,040,000	79,200

See footnotes at end of table.

TABLE 4—Continued

U.S. STOCKS, RECEIPTS, AND CONSUMPTION OF PURCHASED NEW AND OLD ALUMINUM SCRAP AND SWEATED PIG IN 2009^{1,2}¹Revised. -- Zero.¹Includes imported scrap. According to reporting companies, 5.60% of total receipts of aluminum-base scrap, or 172,000 metric tons, was received on toll arrangements.²Data are rounded to no more than three significant digits; may not add to totals shown.³Includes inventory adjustment.⁴Used beverage cans toll treated for primary producers are included in secondary smelter tabulation.TABLE 5
PRODUCTION AND SHIPMENTS OF SECONDARY ALUMINUM ALLOYS BY INDEPENDENT SMELTERS
IN THE UNITED STATES¹

(Metric tons)

	2008		2009	
	Production	Net shipments ²	Production	Net shipments ²
Diecast alloys:				
13% Si, 360, etc. (0.6% Cu, maximum)	16,300 ^r	16,500 ^r	35,900	35,900
380 and variations	166,000 ^r	165,000 ^r	87,200	88,400
Sand and permanent mold:				
95/5 Al-Si, 356, etc. (0.6% Cu, maximum)	28,600 ^r	28,200 ^r	35,700	35,000
No. 12 and variations	2,020	2,020	907	907
No. 319 and variations	60,000 ^r	60,000 ^r	31,900	31,300
F-132 alloy and variations	14,700 ^r	14,400 ^r	6,010	5,990
Al-Mg alloys	8,170 ^r	8,300 ^r	7,220	7,170
Al-Zn alloys	1,650	1,560	1,560	1,580
Al-Si alloys (0.6% to 2.0% Cu)	11,000 ^r	10,900 ^r	2,730	2,590
Al-Cu alloys (1.5% Si, maximum)	521	484	468	468
Al-Si-Cu-Ni alloys	10,100 ^r	9,510 ^r	5,870	5,870
Other	162	205	136	136
Wrought alloys, extrusion billets	467,000 ^r	466,000 ^r	372,000	378,000
Miscellaneous:				
Steel deoxidation	39,900	39,900	19,700	19,600
Pure (97.0% Al)	W	W	W	W
Aluminum-base hardeners	W	W	W	W
Other ³	60,400 ^r	60,500 ^r	51,500	48,800
Total	886,000 ^r	884,000 ^r	659,000	662,000
Less consumption of materials other than scrap:				
Primary aluminum	109,000 ^r	XX	96,600	XX
Primary silicon	11,500 ^r	XX	11,400	XX
Other	7,410 ^r	XX	9,160	XX
Net metallic recovery from aluminum scrap and sweated pig consumed in production of secondary aluminum ingot ⁴	758,000 ^r	XX	542,000	XX

^rRevised. W Withheld to avoid disclosing company proprietary data; included with "Miscellaneous, other." XX Not applicable.¹Data are rounded to no more than three significant digits; may not add to totals shown.²Includes inventory adjustment.³Includes other diecast alloys.⁴No allowance made for melt loss of primary aluminum and alloying ingredients.

TABLE 6
DISTRIBUTION OF END-USE SHIPMENTS OF ALUMINUM PRODUCTS
IN THE UNITED STATES AND CANADA, BY INDUSTRY¹

Industry	2008		2009 ^p	
	Quantity (thousand metric tons)	Percentage of grand total	Quantity (thousand metric tons)	Percentage of grand total
Containers and packaging	2,240 ^r	22.3 ^r	2,150	26.5
Building and construction	1,180	11.7	964	11.9
Transportation	2,830	28.1	1,910	23.7
Electrical	700	7.0	593	7.3
Consumer durables	607	6.0	458	5.7
Machinery and equipment	688	6.8 ^r	475	5.9
Other markets	334	3.3	254	3.1
Total	8,570 ^r	85.2	6,810	84.1
Exports ^e	1,490	14.8	1,280	15.9
Grand total	10,100 ^r	100.0	8,090	100.0

^eEstimated. ^pPreliminary. ^rRevised.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: The Aluminum Association Inc.

TABLE 7
U.S. NET SHIPMENTS OF ALUMINUM WROUGHT AND CAST PRODUCTS,
BY PRODUCERS^{1,2}

(Thousand metric tons)

	2007	2008	2009 ^p
Wrought products ³ :			
Sheet, plate, foil	5,000 ^r	4,770 ^r	4,050
Pipe, tube, extruded shapes	1,580 ^r	1,380 ^r	1,070
Rod, bar, wire, cable	688 ^r	626 ^r	514
Forgings (including impacts)	132 ^r	102 ^r	73
Powder, flake, paste	68 ^r	61 ^r	45
Total	7,470 ^r	6,940 ^r	5,750
Castings:			
Sand	315	255 ^r	160
Permanent and semipermanent mold	615	570	371
Die	1,260	1,030	691
Other	35	44	6
Total	2,230	1,900	1,230
Grand total	9,690 ^r	8,830 ^r	6,990

^pPreliminary. ^rRevised.

¹Net shipments derived by subtracting the sum of producers' domestic receipts of each mill shape from the domestic industry's gross shipments of that shape.

²Data are rounded to no more than three significant digits; may not add to totals shown.

³Wrought products data series includes net shipments in both the United States and Canada.

Source: The Aluminum Association Inc.

TABLE 8
ALUMINUM PRICES

(Dollars per pound)

Material	2008	2009
<u>Primary aluminum, average:¹</u>		
U.S. market	1.205	0.794
LME cash price	1.167	0.755
NASAAC cash price, average	1.021	0.659
<u>Secondary alloy, yearend:²</u>		
A319 (3% Cu)	0.725	1.055
A380 (3% Zu)	0.665	1.005
A360 (0.6% Cu)	0.715	1.065
A413 (0.6% Cu)	0.715	1.065
<u>Scrap, yearend:²</u>		
Clean, dry turnings	0.33–0.34	0.60–0.61
Mixed low-copper-content clips	0.37–0.38	0.67–0.68
Old sheet and castings	0.34–0.35	0.62–0.63
Used beverages cans	0.44–0.46	0.71–0.73

¹Source: Platts Metals Week.

²Source: American Metal Market.

TABLE 9
U.S. EXPORTS OF ALUMINUM, BY CLASS¹

Class	2008		2009	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
<u>Crude and semicrude:</u>				
Metals and alloys, crude	308,000	\$890,000	262,000	\$514,000
Scrap	1,980,000	3,420,000	1,660,000	2,120,000
Plates, sheets, bars, strip, etc.	929,000	4,020,000	739,000	2,830,000
Castings and forgings	24,400	304,000	18,900	218,000
Semifabricated forms, n.e.c.	39,500	385,000	31,100	226,000
Total	3,280,000	9,020,000	2,710,000	5,910,000
<u>Manufactures:</u>				
Foil and leaf	89,700	436,000	72,000	323,000
Powders and flakes	7,840	39,600	4,470	24,100
Wire and cable	52,900	207,000	45,900	132,000
Total	150,000	683,000	122,000	479,000
Grand total	3,430,000	9,710,000	2,830,000	6,390,000

¹Data are rounded to no more than three significant digits; may not add to totals shown.

Source: U.S. Census Bureau.

TABLE 10
U.S. EXPORTS OF ALUMINUM, BY COUNTRY¹

Country	Metals and alloys, crude		Plates, sheets, bars, etc. ²		Scrap		Total	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
2008:								
Brazil	400	\$1,120	9,820	\$63,800	4,300	\$10,200	14,500	\$75,100
Canada	103,000	287,000	413,000	1,680,000	161,000	336,000	678,000	2,300,000
China	1,020	2,450	41,300	302,000	893,000	1,740,000	936,000	2,050,000
France	749	3,140	10,900	99,000	113	500	11,800	103,000
Germany	2,780	12,100	10,700	74,400	1,210	2,890	14,700	89,300
Hong Kong	203	736	17,000	79,200	94,700	195,000	112,000	275,000
Italy	36	160	3,320	42,400	429	950	3,780	43,500
Japan	9,360	34,600	20,300	182,000	59,100	130,000	88,700	346,000
Korea, Republic of	865	2,160	16,300	115,000	223,000	387,000	240,000	505,000
Mexico	178,000	507,000	266,000	1,080,000	85,800	185,000	530,000	1,770,000
Netherlands	421	1,750	1,860	20,100	1,320	2,990	3,600	24,900
Russia	--	--	126	1,090	--	--	126	1,090
Saudi Arabia	264	519	43,400	193,000	18	8	43,700	194,000
Singapore	313	1,050	1,450	15,300	691	942	2,450	17,300
Taiwan	84	592	8,360	48,700	321,000	277,000	330,000	327,000
Thailand	256	383	12,100	47,600	72,800	63,800	85,200	112,000
Ukraine	--	--	14	84	--	--	14	84
United Kingdom	1,100	5,710	24,300	175,000	849	2,580	26,300	183,000
Venezuela	42	182	772	4,450	502	769	1,320	5,410
Other	8,830	29,600	91,800 [†]	488,000 [†]	61,700	86,100	162,000	604,000 [†]
Total	308,000	890,000	993,000	4,710,000	1,980,000	3,420,000	3,280,000	9,020,000
2009:								
Brazil	59	449	11,900	66,500	5,360	7,130	17,300	74,100
Canada	69,600	135,000	300,000	1,010,000	107,000	169,000	476,000	1,310,000
China	21,600	31,900	38,400	215,000	1,010,000	1,260,000	1,070,000	1,510,000
France	710	2,830	9,240	63,100	3	11	9,950	66,000
Germany	4,860	12,800	9,820	72,000	326	743	15,000	85,500
Hong Kong	1,620	3,880	9,090	36,600	76,800	111,000	87,500	151,000
Italy	1,170	4,320	2,370	26,100	--	--	3,540	30,400
Japan	10,500	19,600	8,650	95,500	21,100	31,800	40,200	147,000
Korea, Republic of	1,870	3,930	10,900	80,800	160,000	197,000	173,000	282,000
Mexico	123,000	243,000	249,000	915,000	91,600	148,000	464,000	1,310,000
Netherlands	97	599	711	9,890	315	407	1,120	10,900
Russia	3	36	113	993	--	--	116	1,030
Saudi Arabia	238	606	26,100	123,000	--	--	26,400	124,000
Singapore	16,500	32,400	1,440	13,300	421	586	18,400	46,300
Taiwan	2,460	4,240	2,910	20,400	100,000	103,000	106,000	128,000
Thailand	115	234	7,990	28,900	5,940	7,890	14,000	37,000
Ukraine	--	--	6	59	22	13	27	72
United Kingdom	769	3,440	10,000	93,000	572	1,720	11,400	98,100
Venezuela	41	546	361	2,270	718	1,000	1,120	3,820
Other	6,440	14,800	90,500	400,000	80,300	82,300	177,000	497,000
Total	262,000	514,000	789,000	3,270,000	1,660,000	2,120,000	2,710,000	5,910,000

[†]Revised -- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes castings, forgings, and unclassified semifabricated forms.

Source: U.S. Census Bureau.

TABLE 11
U.S. IMPORTS FOR CONSUMPTION OF ALUMINUM, BY CLASS¹

Class	2008		2009	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
Crude and semicrude:				
Metals and alloys, crude	2,790,000	\$7,810,000	2,900,000	\$4,960,000
Plates, sheets, strip, etc., n.e.c. ²	693,000	2,770,000	499,000	1,550,000
Pipes, tubes, etc.	34,200	271,000	33,400	190,000
Rods and bars	186,000	825,000	254,000	783,000
Scrap	494,000	853,000	433,000	503,000
Total	4,200,000	12,500,000	4,110,000	7,980,000
Manufactures:				
Foil and leaf ³	130,000	590,000	102,000	389,000
Powders and flakes	9,150	43,000	5,710	22,200
Wire	185,000	574,000	156,000	321,000
Total	325,000	1,210,000	264,000	732,000
Grand total	4,530,000	13,700,000	4,380,000	8,710,000

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes circles, disks, plates, and sheets.

³Excludes etched capacitor foil.

Source: U.S. Census Bureau.

TABLE 12
U.S. IMPORTS FOR CONSUMPTION OF ALUMINUM, BY COUNTRY¹

Country	Metals and alloys, crude		Plates, sheets, bars, etc. ²		Scrap		Total	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
2008:								
Argentina	90,000	\$259,000	--	--	--	--	90,000	\$259,000
Australia	39,900	117,000	120	\$1,350	109	\$240	40,100	119,000
Bahrain	8,930	26,700	18,200	63,400	--	--	27,100	90,100
Belgium	87	468	4,790	24,700	--	--	4,880	25,100
Brazil	82,500	226,000	13,800	45,900	367	650	96,700	273,000
Canada	1,990,000	5,510,000	379,000	1,450,000	330,000	558,000	2,700,000	7,520,000
China	21,900	63,200	151,000	567,000	33	70	173,000	630,000
France	511	8,500	4,140	35,700	799	1,180	5,450	45,400
Germany	2,460	7,320	88,500	488,000	386	1,410	91,300	496,000
Italy	32	171	6,120	38,000	18	32	6,170	38,200
Japan	1,030	2,180	10,700	61,300	818	4,960	12,500	68,400
Korea, Republic of	909	2,970	2,010	10,400	184	548	3,100	13,900
Mexico	23,900	109,000	17,800	99,000	114,000	196,000	155,000	405,000
Netherlands	1,130	3,560	2,330	16,500	191	421	3,650	20,500
Norway	2,710	8,750	14	172	--	--	2,720	8,920
Panama	151	384	--	--	2,410	4,860	2,570	5,250
Russia	288,000	795,000	45,900	202,000	1,490	4,380	335,000	1,000,000
Slovenia	--	--	3,550	18,000	--	--	3,550	18,000
South Africa	9,440	23,700	40,100	156,000	500	190	50,000	180,000
Spain	161	715	149	1,310	8	31	318	2,060
Tajikstan	2,780	7,020	--	--	--	--	2,780	7,020
United Arab Emirates	80,300	241,000	19	73	278	518	80,600	241,000
United Kingdom	1,760	3,930	7,930	46,600	6,460	12,900	16,200	63,400
Venezuela	103,000	282,000	3,690	10,700	2,500	5,420	110,000	298,000
Other	38,000	108,000	114,000	531,000	33,500	60,900	185,000	700,000
Total	2,790,000	7,810,000	914,000	3,860,000	494,000	853,000	4,200,000	12,500,000

See footnotes at end of table.

TABLE 12—Continued
U.S. IMPORTS FOR CONSUMPTION OF ALUMINUM, BY COUNTRY¹

Country	Metals and alloys, crude		Plates, sheets, bars, etc. ²		Scrap		Total	
	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)	Quantity (metric tons)	Value (thousands)
2009:								
Argentina	164,000	\$269,000	2	\$32	--	--	164,000	\$269,000
Australia	7,500	13,600	44	581	--	--	7,550	14,200
Bahrain	1,690	4,400	9,860	28,100	--	--	11,600	32,500
Belgium	178	685	2,180	9,540	26	\$56	2,380	10,300
Brazil	106,000	183,000	15,000	33,500	--	--	121,000	216,000
Canada	2,020,000	3,490,000	261,000	772,000	293,000	328,000	2,570,000	4,590,000
China	1,890	3,570	250,000	668,000	9	39	252,000	672,000
France	1,520	8,970	1,710	17,800	35	335	3,260	27,100
Germany	579	2,270	61,200	309,000	413	883	62,200	312,000
Italy	(3)	23	3,540	21,300	97	79	3,630	21,400
Japan	492	1,210	8,900	42,900	414	1,340	9,800	45,400
Korea, Republic of	2,330	4,000	1,580	7,430	105	157	4,010	11,600
Mexico	18,400	68,800	13,400	63,000	95,700	120,000	128,000	252,000
Netherlands	210	859	1,560	9,780	2,150	2,800	3,920	13,400
Norway	442	926	14	412	--	--	457	1,340
Panama	197	298	--	--	1,640	1,830	1,840	2,120
Russia	353,000	548,000	16,700	67,300	1,740	2,970	371,000	618,000
Slovenia	--	--	1,440	6,390	--	--	1,440	6,390
South Africa	52,900	76,000	37,800	97,700	27	28	90,700	174,000
Spain	131	502	121	1,110	--	--	252	1,610
Tajikistan	6,690	8,260	--	--	--	--	6,690	8,260
United Arab Emirates	48,300	93,800	--	--	16	18	48,300	93,900
United Kingdom	355	1,290	4,760	24,000	8,840	9,280	14,000	34,600
Venezuela	84,400	131,000	6,250	10,700	8,390	12,700	99,100	155,000
Other	23,700	42,700	88,600	328,000	20,300	22,200	133,000	393,000
Total	2,900,000	4,960,000	786,000	2,520,000	433,000	503,000	4,110,000	7,980,000

-- Zero.

¹Data are rounded to no more than three significant digits; may not add to totals shown.

²Includes circles, disks, pipes, rods, tubes, etc.

³Less than ½ unit.

Source: U.S. Census Bureau.

TABLE 13
ALUMINUM, PRIMARY: WORLD PRODUCTION, BY COUNTRY^{1,2}

(Thousand metric tons)

Country	2005	2006	2007	2008	2009 ^c
Argentina	271	273	271	394 ^r	400
Australia	1,903	1,932	1,957	1,974	1,943 ³
Azerbaijan	32	32	39	40	30
Bahrain	751	872	865	872 ^r	870
Bosnia and Herzegovina ⁴	131	136	122	123 ^e	96
Brazil	1,499	1,605	1,655	1,661	1,536 ³
Cameroon	90	88 ^e	87	91	73 ³
Canada	2,894	3,051	3,083	3,120	3,030 ³
China ^c	7,800	9,360	12,600	13,200	12,900
Egypt	244	252	258	260	265
France	442	442	428	389	345 ³

See footnotes at end of table.

TABLE 13—Continued
ALUMINUM, PRIMARY: WORLD PRODUCTION, BY COUNTRY^{1,2}

(Thousand metric tons)

Country	2005	2006	2007	2008	2009 ^e
Germany	648	516	551	606 ^r	292 ³
Ghana	13	8	--	--	--
Greece	165	163	166	160	160
Hungary ^e	31	34	--	--	--
Iceland ⁵	272	320	398	787	785
India ⁶	942	1,105	1,222	1,308	1,400
Indonesia ⁶	252	250	242	243	250
Iran ^e	220	205	216 ^r	248 ^r	250
Italy	193	194	183	180 ^{r,e}	180
Japan ⁷	7	7	7 ^e	7	7
Kazakhstan	--	--	--	106 ^r	127 ³
Montenegro	117 ⁸	122	124 ^r	107 ^r	64 ³
Mozambique	555	564	564	536	545 ³
Netherlands	325	312	301	301 ^e	300
New Zealand	351	337	353	316	271 ³
Nigeria	--	--	--	11 ^r	13 ³
Norway	1,372	1,331	1,357	1,358	1,130
Oman	--	--	--	49	351 ³
Poland ⁹	55	58	59	48 ^r	47
Qatar	--	--	--	--	10
Romania ¹⁰	239 ^r	256 ^r	283 ^r	265 ^r	229
Russia	3,647	3,718	3,955	4,190 ^r	3,815 ³
Slovakia ⁶	162 ^r	158 ^r	160 ^r	163 ^r	150
Slovenia ⁴	139	118	111	83 ^r	85
South Africa	846	931	914	811	809
Spain	394	349	408 ^r	408 ^{r,e}	408 ^p
Sweden	102	101	98	112 ^r	70 ³
Switzerland	45	12	--	--	--
Tajikistan	380	414	419	339	359 ³
Turkey ^e	60	60	65	65	65
Ukraine ¹⁰	114	113	113	113	50
United Arab Emirates	722 ^e	861	890	948 ^r	1,010
United Kingdom	369	360	365	326	253 ³
United States	2,481	2,284	2,554	2,658	1,727 ³
Venezuela ^e	615 ³	610	610	610	610
Total	31,900	33,900	38,100 ^r	39,600 ^r	37,300

^eEstimated. ^pPreliminary. ^rRevised. -- Zero.

¹World totals and estimated data are rounded to no more than three significant digits; may not add to totals shown.

²Primary aluminum is defined as "The weight of liquid aluminum as tapped from pots, excluding the weight of any alloying materials as well that of any metal produced from either returned scrap of remelted material." International reporting practices vary from country to country, some nations conforming to the foregoing definition and others using different definitions. For those countries for which a different definition is given specifically in the source publication, that definition is provided in this table by footnote. Table includes data available through March 29, 2010.

³Reported figure.

⁴Primary ingot plus secondary ingot.

⁵Ingot and rolling billet production.

⁶Primary ingot.

⁷Excludes high purity aluminum containing 99.995% or more as follows, in metric tons: 2005—45,400; 2006—49,700; 2007—50,800 (revised); 2008—51,000 (revised); and 2009—52,000 (estimated).

⁸Montenegro and Serbia formally declared independence in June 2006, from each other and dissolved their union.

⁹Primary unalloyed ingot plus secondary unalloyed ingot.

¹⁰Primary unalloyed metal plus primary alloyed metal, thus including weight of alloying material.